

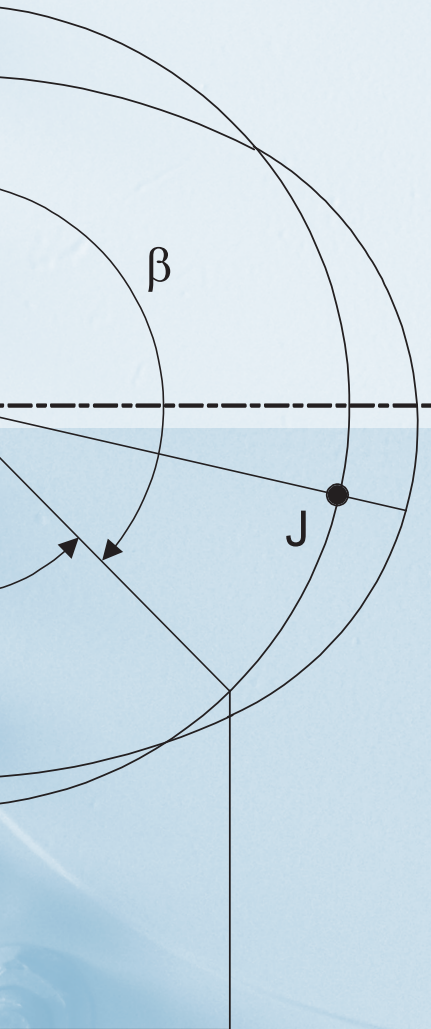
2013 ASME Boiler and Pressure Vessel Code

AN INTERNATIONAL CODE

III

Rules for Construction of Nuclear Facility Components

Division 1 — Subsection NH Class 1 Components in Elevated Temperature Service



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AN INTERNATIONAL CODE

2013 ASME Boiler & Pressure Vessel Code

2013 Edition

July 1, 2013



RULES FOR CONSTRUCTION OF NUCLEAR FACILITY COMPONENTS

Division 1 - Subsection NH

Class 1 Components in Elevated Temperature Service

ASME Boiler and Pressure Vessel Committee
on Nuclear Power



The American Society of
Mechanical Engineers

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TABLE OF CONTENTS

List of Sections	vi
Foreword	viii
Statement of Policy on the Use of the Certification Mark and Code Authorization in Advertising	x
Statement of Policy on the Use of ASME Marking to Identify Manufactured Items	x
Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees	xi
Personnel	xiii
Organization of Section III	xxviii
Summary of Changes	xxxi
List of Changes in Record Number Order	xxxiii
Cross-Referencing and Stylistic Changes in the Boiler and Pressure Vessel Code	xxxiv
Article NH-1000	
NH-1100	Introduction
NH-1110	Scope
NH-1120	Aspects of Construction Covered by these Rules
NH-1130	Temperature and Service Life Limits
	Organization of Subsection NH Rules
Article NH-2000	Material
Article NH-3000	Design
NH-3100	General Requirements for Design
NH-3110	Scope, Acceptability, and Loadings
NH-3120	Special Considerations
NH-3130	General Design Rules
NH-3200	Design by Analysis
NH-3210	Design Criteria
NH-3220	Design Rules and Limits for Load Controlled Stresses in Structures Other Than Bolts
NH-3230	Stress Limits for Load Controlled Stresses on Bolts
NH-3240	Special Requirements for Elevated Temperature Components
NH-3250	Limits on Deformation Controlled Quantities
NH-3300	Vessel Designs
NH-3310	General Requirements
NH-3330	Openings and Reinforcement
NH-3350	Design of Welded Construction
NH-3360	Special Vessel Requirements
NH-3400	Design of Class 1 Pumps
NH-3410	General Requirements
NH-3420	Design Considerations
NH-3430	Pump Types
NH-3500	Design of Class 1 Valves
NH-3510	Design Requirements
NH-3550	Cyclic Loading Requirements
NH-3600	Piping Design
NH-3610	General Requirements
NH-3620	Design Considerations
NH-3640	Pressure Design of Components
NH-3650	Analysis of Piping Components
NH-3660	Design of Welds
NH-3670	Special Piping Requirements

Article NH-4000	Fabrication and Installation	39
NH-4100	General Requirements	39
NH-4110	Introduction	39
Article NH-5000	Examination	41
NH-5100	General Requirements for Examination	41
NH-5110	General Requirements	41
NH-5130	Examination of Weld Edge Preparation Surfaces	41
NH-5200	Required Examination of Welds	41
NH-5210	Category A Vessel Welded Joints and Longitudinal Welded Joints in other Components	41
NH-5220	Category B Vessel Welded Joints and Circumferential Welded Joints in other Components	41
NH-5230	Category C Vessel Welded Joints and Similar Welded Joints in other Components	41
NH-5240	Category D Vessel Welded Joints and Branch and Piping Connections in other Components	42
NH-5260	Fillet, Socket, and Attachment Welds	43
Article NH-6000	Testing	44
NH-6100	General Requirements	44
NH-6110	Scope of Testing	44
NH-6120	Preparation for Testing	45
NH-6200	Hydrostatic Tests	46
NH-6210	Hydrostatic Testing Procedure	46
NH-6220	Hydrostatic Test Pressure Requirements	46
NH-6300	Pneumatic Tests	47
NH-6310	Pneumatic Testing Procedures	47
NH-6320	Pneumatic Test Pressure Requirements	47
NH-6400	Pressure Test Gages	48
Article NH-7000	Overpressure Protection	49
NH-7100	General Requirements	49
NH-7110	Scope	49
NH-7130	Verification of the Operation of Pressure Relief Devices	49
NH-7170	Permitted Use of Pressure Relief Devices	49
NH-7200	Content of Overpressure Protection Report	49
NH-7300	Relieving Capacity	49
NH-7600	Nonreclosing Pressure Relief Devices	50
NH-7610	Use of Rupture Disk Devices	50
Mandatory Appendix NH-I-14	Tables and Figures	51
Nonmandatory Appendix NH-T	Rules for Strain, Deformation, and Fatigue Limits at Elevated Temperatures	96
Nonmandatory Appendix NH-U	Guidelines for Restricted Material Specifications to Improve Performance in Certain Service Applications	187
FIGURES		
NH-3221-1	Flow Diagram for Elevated Temperature Analysis	18
NH-3224-1	Use-Fractions for Membrane Stress	20
NH-3224-2	Use-Fractions for Membrane Plus Bending Stress	20
NH-3351-1	Welded Joint Locations Typical of Categories A, B, C, and D	29
NH-3352-1	Typical Butt Joints	30
NH-3354-1	Permissible Attachment Weld Location	31
NH-3361-1	Category A and B Joints Between Sections of Unequal Thickness	31
NH-3410.2-1	Typical Single Volute Casing	32
NH-3410.2-2	Typical Double Volute Casing	32

NH-3421.11-1	Minimum Tangential Inlet and Outlet Wall Thickness	33
NH-4212-1	Permissible Time/Temperature Conditions for Material Which Has Been Cold Worked > 5% and < 20% and Subjected to Short-Time High Temperature Transients	40
NH-T-1432-1	Stress-Strain Relationship	113
TABLES		
NH-3133-1	Size Restrictions on Connections	8
NH-3217-1	Classification of Stress Intensity in Vessels for Some Typical Cases	15
NH-3217-2	Classification of Stress Intensity in Piping, Typical Cases	17
NH-3225-1	Tensile Strength Values (S_u)	22
NH-3225-2	Tensile and Yield Strength Reduction Factor Due to Long Time Prior Elevated Temperature Service	23
NH-3225-3A	Yield Strength Reduction Factors for 2 $\frac{1}{4}$ Cr-1Mo	23
NH-3225-3B	Tensile Strength Reduction Factors for 2 $\frac{1}{4}$ Cr-1Mo	24
NH-3225-4	Tensile Strength Reduction Factors for 9Cr-1Mo-V	25
NH-3642.1-1	Bend Radius Versus Thickness	36
NH-U-1	Recommended Restrictions	188
ENDNOTES		189

LIST OF SECTIONS

SECTIONS

- I Rules for Construction of Power Boilers
- II Materials
 - Part A — Ferrous Material Specifications
 - Part B — Nonferrous Material Specifications
 - Part C — Specifications for Welding Rods, Electrodes, and Filler Metals
 - Part D — Properties (Customary)
 - Part D — Properties (Metric)
- III Rules for Construction of Nuclear Facility Components
 - Subsection NCA — General Requirements for Division 1 and Division 2
 - Appendices
 - Division 1
 - Subsection NB — Class 1 Components
 - Subsection NC — Class 2 Components
 - Subsection ND — Class 3 Components
 - Subsection NE — Class MC Components
 - Subsection NF — Supports
 - Subsection NG — Core Support Structures
 - Subsection NH — Class 1 Components in Elevated Temperature Service
 - Division 2 — Code for Concrete Containments
 - Division 3 — Containments for Transportation and Storage of Spent Nuclear Fuel and High Level Radioactive Material and Waste
 - Division 5 — High Temperature Reactors
- IV Rules for Construction of Heating Boilers
- V Nondestructive Examination
- VI Recommended Rules for the Care and Operation of Heating Boilers
- VII Recommended Guidelines for the Care of Power Boilers
- VIII Rules for Construction of Pressure Vessels
 - Division 1
 - Division 2 — Alternative Rules
 - Division 3 — Alternative Rules for Construction of High Pressure Vessels
- IX Welding, Brazing, and Fusing Qualifications
- X Fiber-Reinforced Plastic Pressure Vessels
- XI Rules for Inservice Inspection of Nuclear Power Plant Components
- XII Rules for Construction and Continued Service of Transport Tanks

INTERPRETATIONS

ASME issues written replies to inquiries concerning interpretation of technical aspects of the Code.

Interpretations of the Code are posted in January and July at <http://cstools.asme.org/interpretations.cfm>. Any Interpretations issued during the previous two calendar years are included with the publication of the applicable Section of the Code. Interpretations of Section III, Divisions 1 and 2 and Section III Appendices are included with Subsection NCA.

CODE CASES

The Boiler and Pressure Vessel Code committees meet regularly to consider proposed additions and revisions to the Code and to formulate Cases to clarify the intent of existing requirements or provide, when the need is urgent, rules for materials or constructions not covered by existing Code rules. Those Cases that have been adopted will appear in the appropriate 2013 Code Cases book: “Boilers and Pressure Vessels” or “Nuclear Components.” Supplements will be sent automatically to the purchasers of the Code Cases books up to the publication of the 2015 Code.

FOREWORD

(This Foreword is provided as an aid to the user and is not part of the rules of this Code.)

In 1911, The American Society of Mechanical Engineers established the Boiler and Pressure Vessel Committee to formulate standard rules for the construction of steam boilers and other pressure vessels. In 2009, the Boiler and Pressure Vessel Committee was superseded by the following committees:

- (a) Committee on Power Boilers (I)
- (b) Committee on Materials (II)
- (c) Committee on Construction of Nuclear Facility Components (III)
- (d) Committee on Heating Boilers (IV)
- (e) Committee on Nondestructive Examination (V)
- (f) Committee on Pressure Vessels (VIII)
- (g) Committee on Welding, Brazing, and Fusing (IX)
- (h) Committee on Fiber-Reinforced Plastic Pressure Vessels (X)
- (i) Committee on Nuclear Inservice Inspection (XI)
- (j) Committee on Transport Tanks (XII)

Where reference is made to “the Committee” in this Foreword, each of these committees is included individually and collectively.

The Committee's function is to establish rules of safety relating only to pressure integrity, which govern the construction^{*} of boilers, pressure vessels, transport tanks, and nuclear components, and the inservice inspection of nuclear components and transport tanks. The Committee also interprets these rules when questions arise regarding their intent. This Code does not address other safety issues relating to the construction of boilers, pressure vessels, transport tanks, or nuclear components, or the inservice inspection of nuclear components or transport tanks. Users of the Code should refer to the pertinent codes, standards, laws, regulations, or other relevant documents for safety issues other than those relating to pressure integrity. Except for Sections XI and XII, and with a few other exceptions, the rules do not, of practical necessity, reflect the likelihood and consequences of deterioration in service related to specific service fluids or external operating environments. In formulating the rules, the Committee considers the needs of users, manufacturers, and inspectors of pressure vessels. The objective of the rules is to afford reasonably certain protection of life and property, and to provide a margin for deterioration in service to give a reasonably long, safe period of usefulness. Advancements in design and materials and evidence of experience have been recognized.

This Code contains mandatory requirements, specific prohibitions, and nonmandatory guidance for construction activities and inservice inspection and testing activities. The Code does not address all aspects of these activities and those aspects that are not specifically addressed should not be considered prohibited. The Code is not a handbook and cannot replace education, experience, and the use of engineering judgment. The phrase *engineering judgement* refers to technical judgments made by knowledgeable engineers experienced in the application of the Code. Engineering judgments must be consistent with Code philosophy, and such judgments must never be used to overrule mandatory requirements or specific prohibitions of the Code.

The Committee recognizes that tools and techniques used for design and analysis change as technology progresses and expects engineers to use good judgment in the application of these tools. The designer is responsible for complying with Code rules and demonstrating compliance with Code equations when such equations are mandatory. The Code neither requires nor prohibits the use of computers for the design or analysis of components constructed to the requirements of the Code. However, designers and engineers using computer programs for design or analysis are cautioned that they are responsible for all technical assumptions inherent in the programs they use and the application of these programs to their design.

^{*} *Construction*, as used in this Foreword, is an all-inclusive term comprising materials, design, fabrication, examination, inspection, testing, certification, and pressure relief.

The rules established by the Committee are not to be interpreted as approving, recommending, or endorsing any proprietary or specific design, or as limiting in any way the manufacturer's freedom to choose any method of design or any form of construction that conforms to the Code rules.

The Committee meets regularly to consider revisions of the rules, new rules as dictated by technological development, Code Cases, and requests for interpretations. Only the Committee has the authority to provide official interpretations of this Code. Requests for revisions, new rules, Code Cases, or interpretations shall be addressed to the Secretary in writing and shall give full particulars in order to receive consideration and action (see Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees). Proposed revisions to the Code resulting from inquiries will be presented to the Committee for appropriate action. The action of the Committee becomes effective only after confirmation by ballot of the Committee and approval by ASME. Proposed revisions to the Code approved by the Committee are submitted to the American National Standards Institute (ANSI) and published at <http://cstools.asme.org/csconnect/public/index.cfm?PublicReview=Revisions> to invite comments from all interested persons. After public review and final approval by ASME, revisions are published at regular intervals in Editions of the Code.

The Committee does not rule on whether a component shall or shall not be constructed to the provisions of the Code. The scope of each Section has been established to identify the components and parameters considered by the Committee in formulating the Code rules.

Questions or issues regarding compliance of a specific component with the Code rules are to be directed to the ASME Certificate Holder (Manufacturer). Inquiries concerning the interpretation of the Code are to be directed to the Committee. ASME is to be notified should questions arise concerning improper use of an ASME Certification Mark.

When required by context in this Section, the singular shall be interpreted as the plural, and vice versa, and the feminine, masculine, or neuter gender shall be treated as such other gender as appropriate.

STATEMENT OF POLICY ON THE USE OF THE CERTIFICATION MARK AND CODE AUTHORIZATION IN ADVERTISING

ASME has established procedures to authorize qualified organizations to perform various activities in accordance with the requirements of the ASME Boiler and Pressure Vessel Code. It is the aim of the Society to provide recognition of organizations so authorized. An organization holding authorization to perform various activities in accordance with the requirements of the Code may state this capability in its advertising literature.

Organizations that are authorized to use the Certification Mark for marking items or constructions that have been constructed and inspected in compliance with the ASME Boiler and Pressure Vessel Code are issued Certificates of Authorization. It is the aim of the Society to maintain the standing of the Certification Mark for the benefit of the users, the enforcement jurisdictions, and the holders of the Certification Mark who comply with all requirements.

Based on these objectives, the following policy has been established on the usage in advertising of facsimiles of the Certification Mark, Certificates of Authorization, and reference to Code construction. The American Society of Mechanical Engineers does not “approve,” “certify,” “rate,” or “endorse” any item, construction, or activity and there shall be no statements or implications that might so indicate. An organization holding the Certification Mark and/or a Certificate of Authorization may state in advertising literature that items, constructions, or activities “are built (produced or performed) or activities conducted in accordance with the requirements of the ASME Boiler and Pressure Vessel Code,” or “meet the requirements of the ASME Boiler and Pressure Vessel Code.” An ASME corporate logo shall not be used by any organization other than ASME.

The Certification Mark shall be used only for stamping and nameplates as specifically provided in the Code. However, facsimiles may be used for the purpose of fostering the use of such construction. Such usage may be by an association or a society, or by a holder of the Certification Mark who may also use the facsimile in advertising to show that clearly specified items will carry the Certification Mark. General usage is permitted only when all of a manufacturer’s items are constructed under the rules.

STATEMENT OF POLICY ON THE USE OF ASME MARKING TO IDENTIFY MANUFACTURED ITEMS

The ASME Boiler and Pressure Vessel Code provides rules for the construction of boilers, pressure vessels, and nuclear components. This includes requirements for materials, design, fabrication, examination, inspection, and stamping. Items constructed in accordance with all of the applicable rules of the Code are identified with the official Certification Mark described in the governing Section of the Code.

Markings such as “ASME,” “ASME Standard,” or any other marking including “ASME” or the Certification Mark shall not be used on any item that is not constructed in accordance with all of the applicable requirements of the Code.

Items shall not be described on ASME Data Report Forms nor on similar forms referring to ASME that tend to imply that all Code requirements have been met when, in fact, they have not been. Data Report Forms covering items not fully complying with ASME requirements should not refer to ASME or they should clearly identify all exceptions to the ASME requirements.

(13) SUBMITTAL OF TECHNICAL INQUIRIES TO THE BOILER AND PRESSURE VESSEL STANDARDS COMMITTEES

1 INTRODUCTION

(a) The following information provides guidance to Code users for submitting technical inquiries to the committees. See Guideline on the Approval of New Materials Under the ASME Boiler and Pressure Vessel Code in Section II, Parts C and D for additional requirements for requests involving adding new materials to the Code. Technical inquiries include requests for revisions or additions to the Code rules, requests for Code Cases, and requests for Code Interpretations, as described below.

(1) *Code Revisions.* Code revisions are considered to accommodate technological developments, address administrative requirements, incorporate Code Cases, or to clarify Code intent.

(2) *Code Cases.* Code Cases represent alternatives or additions to existing Code rules. Code Cases are written as a question and reply, and are usually intended to be incorporated into the Code at a later date. When used, Code Cases prescribe mandatory requirements in the same sense as the text of the Code. However, users are cautioned that not all jurisdictions or owners automatically accept Code Cases. The most common applications for Code Cases are:

(-a) to permit early implementation of an approved Code revision based on an urgent need

(-b) to permit the use of a new material for Code construction

(-c) to gain experience with new materials or alternative rules prior to incorporation directly into the Code

(3) *Code Interpretations.* Code Interpretations provide clarification of the meaning of existing rules in the Code, and are also presented in question and reply format. Interpretations do not introduce new requirements. In cases where existing Code text does not fully convey the meaning that was intended, and revision of the rules is required to support an interpretation, an Intent Interpretation will be issued and the Code will be revised.

(b) The Code rules, Code Cases, and Code Interpretations established by the committees are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Code rules.

(c) Inquiries that do not comply with these provisions or that do not provide sufficient information for a committee's full understanding may result in the request being returned to the inquirer with no action.

2 INQUIRY FORMAT

Submittals to a committee shall include:

(a) *Purpose.* Specify one of the following:

(1) revision of present Code rules

(2) new or additional Code rules

(3) Code Case

(4) Code Interpretation

(b) *Background.* Provide the information needed for the committee's understanding of the inquiry, being sure to include reference to the applicable Code Section, Division, Edition, Addenda (if applicable), paragraphs, figures, and tables. Preferably, provide a copy of the specific referenced portions of the Code.

(c) *Presentations.* The inquirer may desire or be asked to attend a meeting of the committee to make a formal presentation or to answer questions from the committee members with regard to the inquiry. Attendance at a committee meeting shall be at the expense of the inquirer. The inquirer's attendance or lack of attendance at a meeting shall not be a basis for acceptance or rejection of the inquiry by the committee.